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SCIENCE AND TECHNOLOGY

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[Article: "Chao Liangui (6389 6647 6311) Earns Title of Senior Engineer for His Major Contributions to the Development of Chinese Airborne Radar Antennas"]

[Text] Engineer Chao Liangui of a certain research institute of the People's Liberation Army Air Force has made major contributions toward the development of aircraft radar antennas and the leadership organs of the Air Force have recently bestowed on him the title of senior engineer.

Airborne radar refers to the various radar systems carried aboard aircraft that do the jobs of warning, navigation, guidance, tracking, etc. They are known as the "eyes" of the aircraft and the radar antennas, in turn, are the "eyes" of the radar. For many years Chao Liangui has been doing research work on radar antennas which has resulted in outstanding achievements.

With Chao in charge of the development of airborne radar antennas, each system has reached a higher standard, with each being successively mounted aboard Chinese aircraft.

Chao Liangui graduated from the Mathematics Department of Nankai University in 1958. In early 1971 he was assigned to a certain Air Force research institute to undertake the research and development of airborne radar antenna. In order to meet his county's requirements, he persisted in determined and systematic self-study of such related subjects as physics, electronics, radar and antennas, acquiring a sophisticated foundation in science. Subsequently, he became emmersed in his work to develop airborne radar antenna and made more outstanding achievements. In order to commend his deeds, the Party Committee of the institute bestowed on him both the Merit Citation Class II and the Merit Citation Class III.

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Shanghai FANGZHI XUEBAO [JOURNAL OF TEXTILE RESEARCH] in Chinese No 1, 1980
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An Approach to the Formula for Describing Uneven Mixing in Blended Yarns. This article makes an approach to the theoretical value indicating uneven mixing in blended yarns and verifies the value through a series of systematic experiments. A fairly high reliability has been proved in using the uneven mixing index to check the evenness degree of mixing in different yarns to show the effect of process conditions on the specification of uneven mixing......Yan Haojing [0917 3493 2529], Shanghai Textile Engineering Institute; Li Zaiqing [2621 0375 3237], Changzhou Dyeing and Printing Research Institute (1)

Evenness Effect and Length Constant of a Carding Machine. The dynamic characteristics of a carding machine are taken as the basis of study of the evenness effect. The carding machine is considered to be an object of first order inertia. A concept of length constant is suggested and the constant is a critical parameter of the evenness effect. This evenness effect of a carding machine may be classified according to the wave length of the interference wave. In addition, a method of calculating length is described and three corrections of free fiber quantity are introduced......Bai Yusheng [4101 0056 3932] and Chen Guangyi [7115 0342 1138], both of the Northwestern Cotton Mill No 1 (7)

Abrasion Life and Heat Treatment of a Ring. After analyzing various forms of ring abrasion (point configuration erosion, wave abrasion and uniform abrasion), the paper suggests that metallic rings undergo a carbonitriding conjugation or carbonitri-sulfidizing case hardening treatment so as to improve its anti-fatigue and anti-abrasion properties and prolong its life......Zhang Zhiqian [1728 1807 0051] and Zeng Weichun [2582 4850 2504], both of the Shanxi Textile Machinery Works No 2; Xu Qingqi [1776 1987 3825], Shanxi Textile Research Institute (14)

An Accurate Kinematics Analysis of a Beating-up Mechanism. The kinematics analysis of a beating-up mechanism was made in the light of a plane crank four-bar linkage mechanism. From the analysis were derived the kinematics equation of the beating-up mechanism and formulas for calculating the displacement velocity and the acceleration of the lay sword. A comparison was given between approximate calculations and accurate calculations based on practical examples as shown...... Zhang Qingwu [1728 3237 2976], Northwestern Textile Institute (18)

A Study of the Dechroming Mechanism of Calico-printing Rollers and Improvement of the Existing Method. On examining the existing hot hydrochloric acid dechroming technology, an analysis was made of the reaction mechanism and a new method of a low temperature dechroming process was thus suggested. The problems of the recovery of chrome and elimination of chrome pollution were solved......Tao Naijie [7118 0035 2638], Shanghai Dyeing and Printing Factory No 1 (22)

A Method for Designing the Controlling Inset on a Hosiery Machine. This article gives a systematic description of the key problem in the designing of the inset on a hosiery machine and of how the previous method can be avoided in which the inset for program control was designed by cut after its prototype and then fitted by chance. The suggested method not only leads to the solution of the very problem in the inset design, but also to the making-up in advance of certain technical guides for the subsequent assembly, adjustment and checkup work in accordance with the technical data obtained in designing the inset, thus both standardizing the adjustment and facilitating its checkup......Hua Junle [7458 6874 2867], Shanghai Textile Machinery Plant No 7 (27)

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Quality Control Through the Statistics of Neps and Impurities in a Carding Machine. A method of expressing the sliver quality (cotton neps; impurities) is described. A quality control chart of production process and a chart of the cotton nep and impurity control of a single carding machine are introduced, while a discussion on the index number of processing precision and engineering capacity is made......Wang Huaiyin [3769 2849 5593], Beijing Cotton Mill No 1; Liu Yuanzhang [0491 3293 1728], Institute of Mathematics, Chinese Academy of Sciences (36)

A Discussion on the Speed Regulation of the Ring Spinning Frame by means of a Magnetic Powder Clutch. A 40 kg-M magnetic powder clutch is used as the speed regulator on a ring spinning frame. The spinning speed can be regulated automatically according to the cop package building-up size. Thus a constant tension is obtained during the whole period of spinning a cop. This results in an end breakage rate of fewer than 50 ends and a production increase of 2 percent......Zhang Yiming [1728 0001 7686] and Ye Kuisheng [5509 1145 5116], both of the Wuhan Cotton Mill No 4; Wei Yisheng [7614 1355 3932] and Ming Guanghui [2494 0342 6540], both of the Wuhan Textile Research Institute (45)

Construction Analysis of Spring-loaded Weighting Arms. This paper gives a detailed analysis of construction features of various types of the spring-loaded weighting arms available in domestic markets and advances some points for reference in designing and selecting the proper one......Cheng Naizhao [4141 0035 6856], Shanghai Textile Machine Detail Works (51)

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Dusting in Jute Softening. A description is given of the design applications and results of the dusting system in the softening room of the Guangzhou Jute Mill. The advantages are: less construction material, cheaper fabrication cost, better usage results, and a decrease in dust concentration in the room air from 39.78 mg/m^3 to 4.2 mg/m^3......Qiao Shaozong [0829 4801 1350], Xu Huijun [1776 1920 6874] and Pan Shaochen [3382 4801 3819], all of the Guangzhou Jute Mill (64)

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Edited by the Textile Engineering Society of the PRC

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[Text] Research Reports

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NATIONAL DEVELOPMENTS

SCIENTIST'S APPROACH TO TALENT

HK230214 Hong Kong WEN WEI PO in Chinese 21 Apr 81 p 1

[Report: "Qian Xuesen Sets Great Store on Talent--Highly Recommending a Framed Talented 'Rightist' and Opposing the 'Veterans System' in Scientific and Technical Circles While Favoring Youths' Occupying the Forefront"]

[Text] Beijing, 20 Apr (Zhongguo Xinwen She)--While working in cooperation with Zhang Qinwen who is a new talented scientific and technical worker of Shanxi, well-known Chinese scientist Qian Xuesen willingly acted as a "stepping-stone" citing a model who looked far ahead and valued talent.

This model was the subject of a recent SHANXI RIBAO report. In deference to Qian Xuesen's opinion, his name was omitted. He was called instead "the scientist."

The report said that in 1957 Zhang Qinwen was framed as a "rightist." A graduate from the Nanjing Forestry College, he was subjected to "transformation" in the highlands of Youyu County. Though consigned to the wilderness for political reasons, this talented man shone forth like a hardy seed peeping through the earth. From 1957 to 1962, Zhang Qinwen made a lot of observations and kept many records on "phenology." He wrote the work "Physical Geography." Before the "Great Cultural Revolution," he had seven articles and investigative reports published in national newspapers and magazines. In the winter of 1978, based on a study of the objective development of agriculture, he wrote the first draft of the work, "Systematic Agricultural Projects and the Study of Farming." After being revised, it was sent in the form of a letter to the scientist that he held in respect on 1 March 1979, in order to obtain his advice. On 12 May, the scientist wrote in his own hand a warm reply to Zhang Qinwen, which affirmed the latter's basic idea of studying systematic agricultural projects. It pointed out ways about how to make a penetrating study and put forward views on how to rewrite the work. Thereafter, these two men, who "shared the same tastes" and who had never met each other, became good friends. Through correspondence, they exchanged points of view and discussed academic problems. Due to the scientist's appreciation of Zhang's talents and recommendations, Zhang Qinwen was transferred back to an office under the provincial agricultural area to concentrate on research work.

On 9 March last year, this scientist met with Zhang Qinwen at the Yingze Hotel during a brief stop in Taiyuan. He discussed the matter of cooperating with Zhang Qinwen in writing lectures on "Systematic Agricultural Projects" for a forum on the popularization of systematic projects sponsored by the China Scientific and

Technical Association and the Central Television Station. They seriously studied the standpoint to be adopted in writing, the materials to be chosen and the structure of the article to be written. That day, the scientist spent only 3 hours in Taiyuan, including the time spent dining. But his talk with Zhang Qinwen took up 1 hour and 45 minutes of his time spent in Taiyuan.

The scientist hoped that he could see the first draft of Zhang Qinwen's article by the end of March. Zhang worked day and night and finished the work ahead of schedule on 28 March. The following is a letter written by the scientist to Zhang Qinwen in his own hand on 7 April:

1. I think that your manuscript is all right. It gives expression to the points discussed by us. These points are a bit novel, but I think they are correct. At least, nothing wrong has been found with them to date. So, let them be tested in practice.

2. The name should be changed to read "Systematic Agricultural Projects." This gives us a clearer and simpler term.

3. I insist that my name should be put after yours. You were the first to raise the problem and I just accepted your views. The manuscript was written by you. I just reduced its length and added nothing new. Each lecture contains about 8,000 Chinese characters.

4. I am now returning the manuscript to you. I hope that you will further carefully scan it. Check whether there is anything wrong with the viewpoints raised and whether the given number of Chinese characters is correct. If you want to make any revisions, you may write on the manuscript. You need not have someone copy it again. Please return the manuscript again to me by the end of this month. I will check it again. It is relatively convenient for me to have it finally mimeographed here.

After the final draft of "Systematic Agricultural Projects" was finished, Zhang Qinwen repeatedly suggested that the scientist's name be placed before his own. But the latter in his letter firmly said:

"Your name should be put first. This is justifiable in terms of the number of strokes of the surname. There are of course also the following reasons:

"1. You are chiefly the one who thought up the concept. This has been mentioned in previous letters.

"2. I rather hate the 'veterans' system that now prevails in scientific and technical circles. I may as well take this opportunity to voice my protest against this irrational thing.

"3. In terms of age, you should rank first. I have my hands full with some other business and cannot be the one chiefly in charge of systematic agricultural projects. I hope that you will lose no time pressing forward. In our last talk, you said you wanted to study foreign languages and to take up operations research. This shows that you want to get ahead. Of course, I will do everything I can to help you. Under separate cover, I am sending you a collection of newspapers and magazines for your reference."

On 5 October last year, at the scientist's suggestion, Zhang Qinwen gave at the Central Television Station a talk entitled "Systematic Agricultural Projects." The talk was originally planned for the scientist. But in his correspondence, the latter repeatedly urged Zhang Qinwen to give the talk on his behalf. In a letter, he wrote: "You may as well undertake to talk on 'Systematic Agricultural Projects.' I have already told the comrades of the television station about this. I want to put you to the 'test.' You can thus improve your lecturing skills. One of the attainments of an accomplished scientist is the ability to attract an audience."

A correspondent of the Zhongguo Xinwen She learned at the opening ceremony of the China Society for Systematic Projects last year that the one with whom Zhang Qinwen cooperated was none other than the well-known scientist Qian Xuesen.

CSO: 4008/312

AUTHOR: MO Shanxiang [5459 0810 4382]

ORG: Department of Mechanical Engineering

TITLE: "Auxiliary Projection of Three Skew Lines"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 1-15

TEXT OF ENGLISH ABSTRACT: From the article "Auxiliary Projection of Two Skew Lines" published in the second issue of the JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY, 1980, one theorem has been derived for the orthographic projection of two skew lines of equal length. From this theorem we conclude that a projecting cone can be formed with the projector group and the cone can give the answers to the projection, and that the limitations of the solutions proposed by several Americal professors have been confirmed by the projecting cone.

In this article the number of skew lines has been increased to three. The projecting cone is used to find out the direction of projection made by the three skew lines of equal length; with the degeneration of the projecting cone, in some special cases the processes of change from no solution to many solutions arising from the position change of the line in the problem have been explained. Finally, certain figures are used to illustrate some solution methods.

[Continuation of SHANGHAI JIAOTONG DAXUE XUEBAO No 1, Feb 81 pp 1-15]

As for the problem of projection in equal length made by two skew lines, discussions have been made in several issues of the American journal, ENGINEERING DESIGN GRAPHICS JOURNAL. However, up to the present time, there have been no discussions on three skew lines in that journal.

AUTHOR: WANG Tong [3769 4827]

ORG: Department of Mechanical Engineering

TITLE: "Analysis of Gear-tooth Stress Distribution by Finite Element Method"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 17-38

TEXT OF ENGLISH ABSTRACT: The bending strength of the tooth depends on the stress in the root of the tooth. By the analytic method, photoelastic method and electrical measurements, we can obtain the stress distribution at this portion of the tooth. The finite element method, however, has its particular advantages.

After making investigations and comparative study of large amounts of information, the author has put forward an idea concerning the analysis of stress at the root fillet by the use of the finite element method. The calculation on a typical tooth form has been conducted repeatedly by different division meshes. The results show that the requirement for considerable accuracy, as compared with that obtained by foreign researchers, has been fulfilled. At the same time it is again proved that the ISO method is more reliable than any other method.

This paper makes a close approach to the stress distribution of the root fillet by the finite element method and photoelasticity experiments, and on this basis the author has made some suggestions on increasing bending strength of gear teeth.

AUTHOR: SHAO Shiming [6730 0013 2494]
YANG Akang [2799 7093 1660]

ORG: Both of the Department of Ship Engineering

TITLE: "An Experimental Study of the Effects of Bow Anti-wave Hydrofoil on Resistance and Seakeeping Qualities of High Speed Displacement Hull"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 39-54

TEXT OF ENGLISH ABSTRACT: Fitting the anti-wave hydrofoil on the suitable bow position of a high speed displacement ship ($Frn \approx 0.8$) can effectively reduce the wave resistance. The Ship Hydrodynamics Laboratory of Shanghai Jiaotong University, in collaboration with shipyards concerned, has carried out considerable experimental work on anti-wave hydrofoils, which may influence the effectiveness of resistance reduction.

In the present paper, the model results are briefly introduced and the range of anti-wave hydrofoil parameters, which may be useful for an actual ship, is also provided. The model results show that an amount of 13-16 percent reduction in total resistance may be achieved by fitting a bow anti-wave hydrofoil with a flap. The ship trial data indicate that the speed is increased by 3 knots and the seakeeping qualities are also improved.

AUTHOR: JIN Xianding [6855 0752 1353]
WANG Xiangbao [3769 1651 1405]

ORG: Both of the Department of Ship Engineering

TITLE: "A Study of Ship Hull Structure Modeling in Computing Its Mode Shape by the Finite Element Method"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 55-70

TEXT OF ENGLISH ABSTRACT: In this paper some problems concerning the modeling ship hull structure in mode analysis are discussed, and two different FE structural models based on a GRP ship are presented. For each model we have computed the first several modes and natural frequencies of this with the SAP5 program, and compared these results with those resulting from the full-scale ship exciting test and with those from the transfer matrix method. The results are found to be satisfactory. In addition, some problems, such as free-free boundary condition, added mass, coupled vibration, etc., are studied.

AUTHOR: QIU Yizhong [5941 4135 6945; deceased]

ORG: Department of Electrical Engineering and Computer Science

TITLE: "The Calculation of Sensitivity of Fluxgate Magnetometers Considering the Dimensions of Measuring Coil"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 71-82

TEXT OF ENGLISH ABSTRACT: The calculation of sensitivity of fluxgate magnetometers has been widely studies. Scouten has derived the effect of the dimensions of measuring coil to the sensitivity of single-core probe, but for the ring-core probe he has only made an estimate. In this paper, based on Scouten's work, the formulas for calculating the sensitivity of double-core, rectangular-core and ring-core probes are derived and the experimental data have proved the exactness of these formulas.

AUTHOR: CAI Guolian [5591 0948 1670]
YANG Wenyu [2799 2429 3842]
CHEN Peifang [7115 0160 5364]

ORG: All of the Department of Electrical Engineering and Computer Science

TITLE: "The Recognition of Chinese Characters Using Black Pel Density for Preliminary Classification and Amplitude Spectrum of Projection Profiles"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 83-93

TEXT OF ENGLISH ABSTRACT: In this paper, a recognition scheme based on preliminary classification using black pel density and the correlation of main frequency components of amplitude spectrum of two projection profiles of a Chinese character on the x-y orthogonal axis is discussed. This scheme has the following advantages:
(1) the method of preliminary classification requires fewer programs and simpler algorithms than any other method;
(2) the main frequency components maintain invariance during the certain change of position of a pattern;
(3) the amount of information is largely reduced.

The paper gives the simulated experimental results of 304 Chinese characters on the MVP of the Wang-2200 computer.

AUTHOR: WANG Dongquan [3769 2639 3123]

ORG: Department of Electrical Engineering and Computer Science

TITLE: "An Image Preprocessing Algorithm for Fingerprint Recognition"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 95-107

TEXT OF ENGLISH ABSTRACT: This paper first outlines the process of syntactic approach to fingerprint recognition. Then, an image preprocessing algorithm for fingerprint recognition is presented. It contains binarization, thinning, tracing and encoding of a fingerprint pattern. The program flowcharts as well as the experimental results obtained by using a Wang 2200 MVP computer are given and discussed. The resulting direction codes of the ridges of a fingerprint pattern can be used as the input of the feature extraction program following the preprocessing program.

AUTHOR: LI Jingyi [2621 7234 0001]
FANG Ronggui [2455 2837 6311]
HAN Huibao [7281 1920 1405]

ORG: All of the Department of Applied Chemistry

TITLE: "The Method of Calibration of Discharge Magnitude in Partial Discharge"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 109-119

TEXT OF ENGLISH ABSTRACT: This paper mainly describes a method of calibration of the influence of distributed capacitance of the HV end on measuring results actually obtained by means of the "Type JFD-1 Partial Discharge Detector" developed by this university. It also introduces a simple measurement method for the HV end of the test circuit for ground distributed capacitance. In addition, it briefly reports the results of a comparison test between "Type JFD-1 Partial Discharge Detector" and the "Model 5 Partial Discharge Detector" manufactured by the F. C. Robinson Company of England and their methods of calibration.

AUTHOR: LIU Yanzhu [0491 1693 2691]

ORG: Department of Mechanical Engineering

TITLE: "Attitude Stability of n-Body Spin Satellite with Elastic Appendages"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 121-129

TEXT OF ENGLISH ABSTRACT: This paper discusses the attitude motion of an n-body spin satellite consisting of n symmetric rigid bodies with elastic appendages which are simplified to mass-spring-damper system. The stability criterion in analytical form is obtained via the iteration method. The attitude stability of the dual-spin satellite is a special example when n is 2. The uncertainness of the energy sink approach, commonly employed in the literature, is demonstrated by a counterexample.

AUTHOR: HONG Jiazhen [3163 0857 2182]
LIU Yanzhu [0491 1693 2691]

ORG: HONG a graduate student, Department of Precision Instruments; LIU of the Department of Mechanical Engineering

TITLE: "Motion of Elastically Suspended Gyroscope in Magnetic Fields"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 131-140

TEXT OF ENGLISH ABSTRACT: The nonstationary motion of the large range of an elastically suspended gyroscope in the magnetic fields is discussed by application of the system of differential equations of the first order in normal form instead of Euler's equations. The dynamic characteristics of the gyro in spin-up and erection procedures are investigated. The approximate analytical formulas obtained are identified with the results of numerical integration. It is demonstrated that the normal system of differential equations of the first order is superior to Euler's equations both in approximate analysis and in numerical integration.

AUTHOR: YANG Jiezhang [2799 2638 4545]

ORG: Department of Mechanical Engineering

TITLE: "The Stress and Cohesive Force at the Tip of the Equilibrium Crack"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 141-147

TEXT OF ENGLISH ABSTRACT: The equilibrium crack proposed by G. I. Barenblatt can be divided into two regions, an edge region of width d on which the interatomic attraction forces are acting and make the crack tip close smoothly as well as stresses finite, and the remaining part of the crack, over which the interatomic attraction forces are negligible. The size of the edge region d obtained by calculation is found to be approximately equal to one atomic radius. Therefore, it is considered that there may not exist the edge region and the equilibrium crack can exist only under the condition that the interatomic attraction force is exerted only on the tip of the crack. This paper will give the cohesive force and the stress at the tip of the equilibrium crack.

AUTHOR: TAO Zongying [7118 1350 5391]

ORG: Department of Applied Mathematics

TITLE: "The Comments on Bohm's and Feynman's Quantum Theory"

SOURCE: Shanghai SHANGHAI JIAOTONG DAXUE XUEBAO [JOURNAL OF SHANGHAI JIAOTONG UNIVERSITY] in Chinese No 1, Feb 81 pp 149-157

TEXT OF ENGLISH ABSTRACT: In this paper, some different points of view and comments on Bohm's famous hidden variable theory and Feynman's path integral theory in quantum mechanics are presented.

9717
CSO: 4009/193

AUTHOR: ZHOU Minghui [0719 2494 6540]

ORG: Institute of Electrical Power Generators, Shanghai Dynamo Plant

TITLE: "Brief Discussion of Double Internal Water-cooled Turbogenerator"

SOURCE: Shanghai DIANSHIJIE [ELECTRICAL WORLD] in Chinese No 1, Jan 81 pp 1-3

ABSTRACT: The earliest water-cooled generators appeared in the begining of the 20th century. At that time, the round rotors were placed on the stators. In 1914-20, England, the USA, and Hungary made some turbogenerators with rotors cooled indirectly by water. In 1947, the method of indirect water cooling in the cogs of the rotor was proposed in the USA, but there was some obstructions to cause the effect to be less satisfactory than the hydrogen cooling technique then employed. In 1956, England made the first air-cooled 30,000 KW generator and it was suggested at the time that if rotor internal water cooling can be successfully made, the capacity of generators may be further increased. In May 1958, researchers of the Department of Dynamos of China's Zhejiang University proposed the design of a turbogenerator with inner water-cooled stator and rotor and the first such a generator of the worl was successfully tested in Oct of that year. By the first half of 1980, more than 130,000 hours of successful operation have been realized and many generators of similar designs have been built in Shanghai, Harbin,Beijing, etc. and the design principle has also been further developed in Switzerland, West Germany, the USA, the USSR, etc. The problems of inner water cooling of turbogenerators and its pilot design in China and subsequent development in various countries of the world are discussed.

AUTHOR: LU Mingliang [7120 2494 0081]

ORG: Shanghai Minhang Power Plant

TITLE: "Application of Electronic Dust Removing Device in Thermal Power Plants"

SOURCE: Shanghai DIANSHIJIE [ELECTRICAL WORLD] in Chinese No 1, Jan 81 pp 6-7

ABSTRACT: With the development of the capacity of power plants in China, the water spray dust removing equipment has been gradually replaced by electronic dust removing devices in many large and medium sized thermal power plants of the country. These advanced devices have dust removing efficiencies of 228,000-296,000m^3/hour and have greatly reduced air pollution. The major structure of this electronic dust removing device, its automatic control component, its work theory, and its operation efficiency are described.

AUTHOR: QI Guobin [2558 0948 1755]

ORG: Shanghai Bureau of Power Supply

TITLE: "Analysis of Electrical Accidents in Shanghai in Recent Years"

SOURCE: Shanghai DIANSHIJIE [ELECTRICAL WORLD] in Chinese No 1, Jan 81 pp 16-17

ABSTRACT: Electrical accidents in Shanghai in recent years involve mainly death from electrocution, equipment damage, and power stoppagecaused by mistakes in the work processes. Electrical fires also occupy a relatively large ratio among all the fires. In the past 7-8 years, there averaged 60 deaths in the 10 suburban counties and 8-9 in the city and town factories every year due to electrical accidents. There has been obvious seasonal variation; the peak accident months include May, Jun, Jul, Aug, and Sep. This is due to the high humidity in summer months to cause the insulation of electrical equipment to be less effective. Inattention to safety rules is the reason for accidents while handling portable and moveable electrical tools. High voltage power lines have not caused as many accidents as the early 60's but there were 4 accidents of that nature in Jan-Oct, 80. There were 8 deaths due to broken power lines during wind storms. There have been an average of 3 accidents a year resulting from small animals attacking power transformers. Following a statistical analysis of these accidents, the paper presents a list of suggestions for preventing the occurrence of such accidents.

AUTHOR: CHEN Xingjin [7115 2502 6855]
WANG Shuyu [3769 1466 0060]

ORG: None

TITLE: "The Highest High Voltage Power Transmission Tower in Shanghai District"

SOURCE: Shanghai DIANSHIJIE [ELECTRICAL WORLD] in Chinese No 1, Jan 81 p 22

ABSTRACT: The highest 220 KV high voltage power transmission line iron tower to span across the river was completed on the southern bank of Huangpujiang in Minhang on 26 Jul 80. The tower is 123 m in height and weighs 150 tons. New prestressed soft steel tubes are used for the tower to save about 40 percent of the steel materials and to guarantee reasonable load. Instead of installing the lower segment first, a new work design starting with the very tip of the tower to proceed downward was adopted and more than 90 percent of the high above the ground work was eliminated. This tower was designed by East China Electrical Power Designing Academy, and constructed by Jiangnan Shipbuilding Plant.

6168
CSO: 4009/223

AUTHOR: SHI Jilan [0670 4764 5695]
HUANG Quanguang [7806 5425 0342]

ORG: Both of Industrial Hygiene Research Office, Shandong Provincial Institute of Medical Sciences, Jinan

TITLE: "Micronuclei Determination in Peripheral Blood Lymphocytes of Workers Exposed to Neutrons in Oil-field and Uranium Miners"

SOURCE: Beijing YICHUAN [HEREDITAS] in Chinese No 2, Mar 81 pp 4-5

ABSTRACT: Chromosome aberration analysis is a reliable and sensitive biological index for early diagnosis of radiation injury and the work of evaluating the effects of radiation protection drugs. The technique of analysis is complicated and many factors influencing the results, however. In early 70's Matter and Schmid used another form of expression of chromosome aberration and established a new cyto-genetic technique--the method of micronuclei determination (MUTATION RES. No 12, 1971). The technique has since been further developed by Rondanelli et al, Shi Liming [2457 4539 2494] and others. This paper introduces a method of gel-centrifugation isolation and concentration of lymphocytes in blood to prepare slides, for observation and calculation of the rate of micronuleus appearance. A total of 50 healthy blood donors, 46 neutron prospectors, and 53 uranium miners (above 8 years of uranium mining work) are observed. The results are reported.

AUTHOR: CHEN Yifeng [7115 1355 1496]
LUO Lihua [5012 7787 5478]

ORG: Both of Kunming Institute of Zoology, Chinese Academy of Sciences

TITLE: "Discovery of Aged C-banding in Mouse Chromosomes"

SOURCE: Beijing YICHUAN [HEREDITAS] in Chinese No 2, Mar 81 p 11

ABSTRACT: C-banding is one type of banding division of chromosomes, indicating the existence of chromatins of structural anomalies on the chromosomes. Arrighi et al were the earliest to recommend the method of C-banding manifestation and others have since introduced other techniques to be employed for the purpose. At present, one or the other of these techniques remains indispensable for proceeding with Chromosome C-banding. The authors discovered, however, that C-banding appears naturally on chromosome slides of mouse that have been in storage for a prolonged period of time, without these slides being treated in accordance with one of the aforementioned techniques. The appearance of the C-banding is related to the duration of storage of the slide. This paper reports the condition of preparing chromosome employed by the authors in the past and the result of observation of these aged slides. It is the assumption of the authors that the appearance of the C-banding is the result of slow oxidation in the air during the storage process, but, of course, it may also be related to the structural characteristics of the chromosomes themselves.

AUTHOR: GUO Sandui [6751 0005 1018]
GUO Xinghua [6751 5281 5478]
CHEN Naiyong [7115 0035 3938]
JIA Shifang [6328 1102 5364]
MEN Dapeng [7024 1129 7720]

ORG: All of Institute of Microbiology, Chinese Academy of Sciences, Beijing

TITLE: "Separation, Purification, and Preparation of Plasmids DNA by Agarose Gel Electrophoresis"

SOURCE: Beijing YICHUAN [HEREDITAS] in Chinese No 2, Mar 81 pp 37-39

ABSTRACT: Isolation purification of plasmid DNA is an important technique in genetic engineering and molecular genetic research of plasmids. Many methods are available and each has merits and demerits. Under the condition of authors' laboratory, an instrument was studied and made for agarose gel electrophoretic isolation, purification, and preparation of plasmid DNA. The instrument has, since its completion, been used to purify and prepare the plasmids of pBR322, pAS1, pUB110, pVA517F, etc. Of these, pBR322 and pAS1 plasmids were observed under electron microscope and after purification, transformation experiments were conducted and their bio-activities proved. Moreover, this instrument may also be used to separate several plasmids of different molecular weight at one time, with a rate of return of about 85 percent. The structure of the instrument, the process of using it, and the experiments are reported.

6248
CSO: 4009/235

AUTHOR: ZHOU Fengsuo [0719 6265 6956]

ORG: Center of Agricultural Sciences, Baoquanling Farm Bureau of Management, Heilongjiang Province

TITLE: "A Preliminary Study on the Inheritance of Early Maturity in Soybean"

SOURCE: Beijing YICHUAN [HEREDITAS] in Chinese No 2, Mar 81 pp 12-15

ABSTRACT: Early maturity is one of the important ecological indices of soybean. In combination with soybean breeding work, the author and colleagues observed the principle of hereditary variation of early maturity among hybrid offsprings. F_1 of 42 groupings and F_2 of 6 groupings and their parents were planted in 1977 for the study. The average expression of early maturity of F_1 and heterosis, the phenomenon of segregation of early maturity in F_2, the average expression of maturation time, and its variation among hybrid offsprings in comparison with their parents are observed and reported. Inheritability of maturation time is estimated, through a calculation of the inherited maturation time of 6 groups, at 76.5 percent. This is to say the genetic factor of maturation time occupies a relatively large ratio among various expressions and is not easily influenced by external condition of the environment. If a certain target of early maturity is desired , strict selection among the offsprings should begin soon, i.e. the influence of the early maturing parent on the early maturity of the offspings is rather great.

AUTHOR: WANG Zexi [3769 0463 0296]
FENG Yusheng [7458 3768 3932]
PAN Wen [3382 3090]

ORG: All of Jiangning County Institute of Agricultural Sciences, Jiangsu Province

TITLE: "A Preliminary Genetic Study on Pollen-plants in Rice"

SOURCE: Beijing YICHUAN [HEREDITAS] in Chinese No 2, Mar 81 pp 19-23

ABSTRACT: Since anther plants of rice was first successfully cultured by Japanese scientists in 1968, some new breeds of rice have also been created in China with this technique and they have already been extended in production. In the process of carrying out rice anther culture work, the authors have emphasized the study of the expressions of major characteristics of rice anther plants, the relationship between parent materials and anther plants, and the problem of genetic variations of offsprings of anther plants. This paper reports the observed data and their analyses,collected in the past several years.

AUTHOR: LI Zhengyou [2621 6927 0645]

ORG: Rice Research Office, Yunnan University of Agriculture, Kunming

TITLE: "A Preliminary Study of the Dominance and Recessiveness of Photosensitivity of F_1 Hybrid of Local Varieties of Rice in Yunnan"

SOURCE: Beijing YICHUAN [HEREDITAS] in Chinese No 2, Mar 81 pp 24-26

ABSTRACT: The agricultural geographical environment of Yunnan Province is complex. There are rich resources of rice cultivars which are formed under different conditions of latitude and elevation and they have different photosensitivity. An experiment was carried out to determine the photosensitivity of F_1 hybrid of local cultivars of different photosensitive characteristics for the purpose of clarifying the dominance or recessiveness of this characteristic. Among other findings, it appears that F_1 of a cross between high elevation and low elevation cultivars of weak or relatively weak photosensitivity does not inherit a dominant photosensitive characteristic; the characteristic basically varies with the photosensitive characteristic of the low elevation cultivar. This is also the case with the F_1 of high elevation xian variety rice of the province. The highly photosensitive cultivars of the low elevation areas are more persistent in preserving the characteristic, however; when one of these is crossed with geng or xian of low elevation and weak photosensitivity, the F_1 demonstrates very little influence from the parent of low photosensitivity. For this reason, for the purpose of obtaining highly photosensitive hybrids, cultivars bred from local varieties of low latitude and low elevation areas of Yunnan should be used for the sterile-free line and/or the restorer line.

6248
CSO: 4009/234

AUTHORS: YUAN Guoying [5913 0948 2503]
PENG Buzhuo [1756 5943 2154]

ORG: None

TITLE: "Interesting Geography of Tu-mu-er Peak Region"

SOURCE: Beijing DILI ZHISHI [GEOGRAPHICAL KNOWLEDGE] in Chinese No 2, Feb 81 pp 3-5

ABSTRACT: The Tu-er-mu peak region is the region surrounding the highest Tu-er-mu peak (7435.3 meters altitude) of the Tienshan range, about 20 kilometers within the Chinese territory of the Chinese-Soviet Sinjiang border. The peak is surrounded by numerous other peaks all above 6000 meters altitude, and covered perennially with snow.The distinctly different geography of the northern and southern regions of the peak described covers the racial population, the famous war and laboring horse breeding, the agricultural characteristics, the historically importance as a juncture of the former "silk route", its fascinating 829 glaciers, its astounding hotsprings, and the extraordinary animals and plants therein.

AUTHOR: LIU Fujian [0491 4395 7003]

ORG: None

TITLE: "Ya-lu River"

SOURCE: Beijing DILI ZHISHI [GEOGRAPHICAL KNOWLEDGE] in Chinese No 2, Feb 81 pp 4-5

ABSTRACT: The geography of the Yalu river,that forms the boundary of northeastern China and North Korea reviewed includes its source, course and tributaries, as well as its topography, climate, precipitation, forestry, mineral resource, agriculture and navigation. Emphasis is made on the joint reconstruction of the Korean War-destroyed Shuifeng Hydroelectric Power Plant,the newly constructed Yunfeng Hydroelectric Power Plant, and the construction of a series of medium and smaller size hydroelectric plants, and the evenly distribution of power to both countries, since the establishment of Joint Chinese-Korean Yalu River Hydroelectric Power Company in 1955, that has further foster the economical development and friendship between the people of both countries.

AUTHOR: QIAO Song [0829 2646]

ORG: None

TITLE: "New State of Qinghai Lake Bird Island"

SOURCE: Beijing DILI ZHISHI [GEOGRAPHICAL KNOWLEDGE] in Chinese No 2, Feb 81 p 10

ABSTRACT: Due to the steady lowering of the water level of Qinghai Lake, the former Bird Island in the lake had since 1978 connected with the Buha river delta to become a peninsula. And so was the Haixishan island, which thus reduced the islands in the lake from five to three. To protect the bird eggs from fox destruction, a dense barbed wire fence separating the peninsula from the main shore was lately installed.

AUTHORS: HUANG Yang [7806 7122]
WU Zhi [0702 2535]

ORG: None

TITLE: "Highway Communication at the Border Regions of Yunnan, Guangxi and Guizhou Provinces"

SOURCE: Beijing DILI ZHISHI [GEOGRAPHICAL KNOWLEDGE] in Chinese No 2 Feb 81 p 11

ABSTRACT: Since the liberation, 10,286 kilometers of highways joining 28 counties over the more than 1000 meters altitude Yunnan-Guizhou-Guangxi Plateau were constructed. The opening to traffic of these highways during the past 20 years has greatly advanced the mutual coordination, cooperation and assistance of all the nationalities , and promoted the prosperity of the economy of the region. At present, many special highways leading to districts of minority nationalities, forest areas, mines and hydroelectric power stationsare also under construction.

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TITLE: "Good Beginning of Chinese Metrological Geographical Works"

SOURCE: Beijing DILI ZHISHI [GEOGRAPHICAL KNOWLEDGE] in Chinese No 2, Feb 81 p 30

ABSTRACT: Commemorating the opening of a metrological geography class at Nanjing University, commissioned by the Ministry of Education from September to November 1980, which was attended by 40 geography teachers and researchers from 22 correlated units to study the theories and methods of metrological geography, and to train the techniques of computor applications, a review is made on the advances of metrological geography research in China , from the introduction of human geography in the 50's to 60's, to the invitation of foreign professors of Chinese decent for lecture tours, listing of metrological geography as a required course in geography departments of universities, compilation of teaching materials, compilation of theoretical textbooks, and compilation of computor programs.

11,206
CSO: 4009

Geology

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TITLE: "On the Mechanical Mechanism of the Formation of Graben"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 1-11

TEXT OF ENGLISH ABSTRACT: The formation of graben is generally controlled by a crustal fracture system on different levels of depth and is actually a fault-depressed belt between faulting-blocks, opening and closing with changes of the stress field (shearing-tension, shearing-compression) between faulting-blocks. Thus, in view of geomechanics, graben is generally a protogeosyncline.

The distribution of the graben system is always in a zigzag pattern that is related to the zigzag fractures. Moreover, the occurrence of these zigzag fractures often has some relation to the tensional stress field on the background of the regional compressional stress field. As a result, the graben system can frequently be found on the top of an old uprising or the bottom of an old depression. The characteristics of the graben system depend mainly on a series of factors, such as the mode depth, magnitude and manner of activity of the old fracture system which controls the development of graben. The geomechanical and geohistoric analyses indicate that once a region is compressed, other regions adjacent to it must be tensed, and vice versa; as for a particular region, if it is compressed at one stage, it will probably be tensed at the next stage. That is why we say that graben may have been generated by tension in some regions as well as by compression in other regions. Thus, the graben systems, either tensional or compressional, may have undergone alternately tensional and compressional processes in their development which may result in different responses in their sedimentary formation and magmatic activities. Therefore, from the mechanical behavior, the graben systems can be classified into three categories: tensional, shearing-tensional and shearing-compressional. They developed on different levels of depth and with varied magnitude of activity and show significantly different characteristics in their magma and sedimentary formations and deep-seated geophysical field. Hence, the graben systems can also be divided into four orders, i.e., superficial, foundational, crustal and lithospheric. Under tensional stress the grabens developed in the succession of superficial--foundational--crustal--lithospheric, in other words, it is a transitional process from continental crust to oceanic crust. While under compressional stress their evolution was in an opposite direction, that is, from oceanic crust to continental crust.

[Continuation of DIZHI KEXUE No 1, 1981 pp 1-11]

Since the formation and development of graben systems are closely related to the faulting systems, the problem of the driving force for graben activity should be explored in the light of a world-scale fracture network.

[Continuation of DIZHI KEXUE No 1, 1981 pp 1-11]

The so-called "mantle material uprising" may be a source forming a tensional stress field and promoting the formation of a graben. However, the principal factor causing the uprising of upper mantle materials is the fracture penetrating into the lithosphere which provides a passage for them.

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TITLE: "Garnets of Crystalline Rocks in the Himalayas"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 12-20

TEXT OF ENGLISH ABSTRACT: Garnets of metamorphic rocks, migmatite and granite in the high Himalayas were studied, and their physical constant, such as unit cell, refractive index and specific gravity, and chemical composition, was determined in this paper. The results are briefly summarized as follows:
1. The garnets in Himalayan metamorphic rocks can be divided into the following five classes: A) garnet associated with sillimanite, B) garnet associated with kyanite, C) garnet associated with staurolite, D) garnet associated with biotite and muscovite and E) garnet occurring in the metamorphic basic rocks. The garnets of classes A and B consist mainly of almandite and pyrope components, displaying the smallest unit cell (11.53 - 11.55 Å) for the Barrovian metamorphic facies. The compositions calculated from two monomineralic analyses of garnets are Alm 72.53%, Pyr 20.15%, Spe 1.18%, And 2.33% and Alm 82.88%, Pyr 13.65%, Spe 1.50%, Gro 1.90%, respectively. The class D garnets, displaying intermediate unit cells, consist mainly of almandite components and some grossular components, i.e., Alm 78.92%, Gro 11.61%, Pyr 3.44%, And 5.70% and Spe 0.32%. The garnets of

[Continuation of DIZHI KEXUE No 1, 1981 pp 12-20]

class E occur in metamorphic amphibolite that was derived from basic volcanic rocks. They have high Ca content, large unit cells and low refractive indexes. Two monomineralic analyses are Gro 41.09%, Alm 54.54%, Pyr 3.83%, Spe 0.55% and Alm 37.37%, Gro 33.52%, Spe 9.06%, Pyr 14.27%, And 5.78%, respectively.
2. The unit cell of migmatitic garnets varies in a wide range from 11.55 Å to 11.66 Å, which can be distinguished by two groups, i.e., 11.55 - 11.57 Å and over 11.60 Å. Therefore, we speculated that Himalayan migmatites might be formed by more than one process. In other words, they are not only related to Pre-Cambrian metamorphism, but also to Tertiary Granitization.
3. Garnets of the Himalayan Tertiary granites have an 11.54 - 11.57 Å unit cell, some of them being Mn-rich (MnO 7.05%) garnets. For example, the composition of one sample is Alm 75.90%, Spe 17.34%, Pyr 2.11% and And 4.55%.
4. The unit cell of garnet in pelitic metamorphic rocks may be regarded as an indication of the grade of regional metamorphism. The demarcation of Barrovian metamorphic zones is as follows:

	sillimanite zone	kyanite and stuarolite zone	almandine zone	biotite and chlorite zone
a_0(Å)	<11.545	11.545 - 11.560	11.560 - 11.610	>11.610
a_0/N	<6.40	6.40 - 6.41(?)	6.41 - 6.50	>6.50

5. The Pre-Cambrian Nyalam group in the high Himalayas is a dismembered progressive regional metamorphic belt.

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TITLE: "Study of Some Clinoptilolite, Heulandites and Mordenites in China"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 21-29

TEXT OF ENGLISH ABSTRACT: This paper introduces the results of preliminary studies on clinoptilolites, heulandites and mordenites found in China. These samples were centrifugally separated by heavy liquid, and the pure zeolites were obtained. Then, the pure zeolites were chemically analyzed by wet methods and their cell dimensions were determined. It is suggested that clinoptilolites in China commonly have relatively high contents of alkaline earth metals and most of them can be ascribed to the Ca-type clinoptilolite. The water contained in clinoptilolite and heulandite depends on the ratio of Si/Al as well as on the amount of alkaline earth metals. The cell dimensions of all the clinoptilolite and heulandite samples show little variation, especially along the c axis.

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TITLE: "Morphology of the Crystals of Kaolinite-Halloysite Minerals and Its Evolution"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 30-38

TEXT OF ENGLISH ABSTRACT: The weathering-type of kaolines consists of kaolinite-halloysite minerals. The members of this type of mineral exhibit some regularity in their distribution in the sections of weathered crust. A well-preserved weathered crust of kaoline can be divided into the three zones, i.e., completely-weathered, incompletely-weathered and semi-weathered zones. The completely-weathered zone consists mainly of 10 Å halloysites, being from tubular to elongated platy crystals. The incompletely-weathered zone consists mainly of 7 Å and/or 10 Å halloysites, being developed based on crystallite-kaolinite, and formed in spheric or elongated platy crystals in the initial stage of crystallization. The semi-weathered zone consists mainly of crystallite-kaolinites, forming an irregular platy aggregate of very fine crystals and preserving fairly well the outlines of minerals. This regularity in the distribution and evolution of minerals was a result of different stages of weathered crust evolution.

[Continuation of DIZHI KEXUE No 1, 1981 pp 30-38]

The author concludes that the kaolinite-halloysite minerals can be regarded as a series of minerals formed in the process of their evolution. The separate members of this series are genetically closely related and are composed essentially of identical crystal structural units, the kaolinite layer units. The difference between them lies in the presence and amount of the interlayer water. It is the interlayer water which caused the displacement of kaolinite units parallel to the layer and hence led to the disorder in crystal structures. However, the molecular water between the kaolinite layers is not stable. When it is expelled, the superimposition in the direction of the c-axis between kaolinite layer units will return to the normal pattern. Consequently, the tubular halloysite changed to hexagonal kaolinite.

The common members of kaolinite-halloysite minerals are crystallite-kaolinite, kaolinite, 7 Å halloysite and 10 Å halloysite. In the literature, crystallite-kaolinite was called poorly-crystallizing kaolinite, which may be confused with the fireclay. The so-called crystallite-kaolinite is the product of initial crystalline state.

Its crystal form is usually incomplete and its grain is extremely fine. It was formed in the initial stage of weathering. The nomenclature of the 7 Å halloysite is still a controversial issue. The author holds that the 7 Å halloysite does exist in nature and it represents the product of some weathering stage.

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TITLE: "On the Na-Bentonites in China"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 39-46

TEXT OF ENGLISH ABSTRACT: The components of four bentonites and their mineral characteristics were studied by X-ray diffraction, DTA, TGA, chemical analysis and electron microscope as well as cation exchange capacity. The results obtained indicate that the samples collected from Linan Pinshan (Zhejiang Province), Tudsun (Xinjiang) and the bottom deposits of Mount Heishan (Liaoning Province) belong to the Na-type of bentonites, and the samples from Xuanhua (Hebei Province) to the Ca-Na-type.

The Na-bentonites mentioned above were formed by desilication (alteration) of tuff under a high-alkaline condition, and their transformation types were associated with the sealing condition of deposits, tectonic process and weathering. Near the ground surface bentonites were often translated into the Ca-type one.

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TITLE: "Loess of Zhaitang and Yanchi Regions, Beijing"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 47-54

TEXT OF ENGLISH ABSTRACT: The Zhaitang Basin is the region where the "Malan loess" was named, and the loess and Hipparion red clay were first distinguished here. However, knowledge about the composition, texture, origin and age of the loess in this area is still insufficient.

As a result of the field geological survey of two loess profiles of Zhaitang and Yanchi, the authors discovered that the primary loess consists of the Lishi loess and Malan loess, two deposits different in age and lithology. They are distributed widely on the flat surface above the third terrace defined by the authors. However, Malan loess also underlies inconformably under the Malan gravels which constitute the Malan terrace, but does not overlie on the Malan terrace. Thus, Malan loess was formed earlier than the Malan gravels.

Based on the detailed studies of their grain-size distribution, detrital and clay minerals, physical and chemical properties and microtexture, the following

[Continuation of DIZHI KEXUE No 1, 1981 pp 47-54]

conclusions can be obtained: The loess was formed by the soil formation of dust materials which were transported and deposited by wind in the dry and cold climate. From the fact that during the period of deposition of the Lishi loess the climate was more humid and warm than that for the deposition of the Malan loess, they have somewhat different characteristics. The alternate occurrences of loess and its buried soil suggest the rhythmical changes of dry-cold climate and humid-warm or humid-hot climate.

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TITLE: "Preliminary Notes on Paleoecology, Paleoclimate and Paleogeography of Early Pleistocene Foraminiferal Fauna in Shunyi County, Beijing Plain"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 55-59

TEXT OF ENGLISH ABSTRACT: In 1978, abundant foraminiferal fossils were discovered in the Lower Pleistocene Xiadian Formation, Shunyi County, Beijing plain. The major foraminifera are *Paromalina bilateralis*, *Cibicides* spp., *Cassidulina* spp., *Trifarina angulosa*, *Neogloboquadrina pachyderma*, *Globigerina bulloides*, *G. inflata* and so on. They are not only comprised of cold-water elements, but also warm-water ones, hence this foraminiferal fauna is not a simple mixture of cold-water and warm-water elements, but a distinct ecologic group, of which the *Neogloboquadrina pachyderma* are mainly dextral and their ecophenotypes are comparatively multiple. Therefore, this foraminiferal fauna is not a cold-water population, instead it is a comparatively warm-water population, equivalent to the foraminiferal fauna in the southern transitional zone of the northern Pacific Ocean, with the exception of the subtropical zone. We infer that its paleo-water temperature is slightly colder than that of the recent Bohai Bay. Its climatic environment probably belongs to the warm-temperate zone, and its atmospheric temperature may be a little lower than that of the present.

[Continuation of DIZHI KEXUE No 1, 1981 pp 55-59]

The planktonic foraminifera made up to 35 percent of the foraminiferal fauna, and deep-water species predominate over the benthonic foraminifera, such as *Trifarina angulosa*, *Parumalina bilateralis*, etc., while shallow-water species, such as *Ammonia beccarii*, have not been discovered yet. Viewed from the conditions mentioned above, it is obvious that the Paleo-Bohai outlet should be wider and deeper than that at present and, consequently, marine water should have transgressed up to the Beijing plain.

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TITLE: "Mineral Composition of Clastic Cave Deposits from the Site of 'Peking Man' and Its Implications"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 60-66

TEXT OF ENGLISH ABSTRACT: For the purpose of dividing the cave deposits and understanding the mother rock in the provenance and paleoclimatic change, this paper attempts to study systematically the mineral composition of the clastic cave deposits with emphasis on the heavy mineral. Our research covers the following three aspects: First, the cave deposits came from cave-wall collapse and exotic materials. In light of the features varying with the heavy and light minerals in the exotic materials we were able to trace the provenance of these materials to Fangshan granodiorite bodies located not far to the north of the cave and to rocks of different ages in its vicinity. Secondly, the cave deposits show a fair sedimentary rhythm represented by a correlated cyclothem of percentage contents of heavy composition, contents of stable minerals and ZTR of heavy composition. According to the sedimentary nature and rhythm, the representative section of

[Continuation of DIZHI KEXUE No 1, 1981 pp 60-66]

location No 1 can be divided into six layers. Third, the contents of heavy composition and stable minerals, especially the ZTR, can be regarded as an indication of the maturity of minerals. If the climatic factor was prevailing and the climate was humid and warm, the maturity of minerals was relatively high. If the climate was cool and arid, the maturity of minerals was relatively low. Therefore, taking the upper part of the No 8-9 layer as a boundary, below it the cool-arid climate dominated and above it warm-humid climate dominated.

The "anti-synchronous change" relation between the percentage content of heavy composition and ZTR of heavy minerals indicates that the climatic changes from frigid--cold--slightly warm to cold--warm--humid--slightly cold--warm-humid can be followed in ascending order.

The mineralogical characteristics of basal conglomerate and the lower part of the lower conglomerate horizon are of a specific paleoclimatic significance. As we know the higher content of heavy composition and lower value of ZTR, particularly the existence of extremely unstable minerals in large amounts, the considerably cold climatic conditions are reflected. Taking this fact and the geologic conditions in the region studied into consideration, in combination with our predecessors' research, we cannot rule out the possibility that the cave deposits are glacigenous.

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TITLE: "Model Experiments on the Instable Spherical Shell of the Upper Crustal Structure and Its Mechanical Analysis"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 67-72

TEXT OF ENGLISH ABSTRACT: A number of model experiments on the geological structure of the upper crust were conducted in light of the instability of the spherical thin shell, resulting in the display of the structural patterns more or less similar to those formulated by Li Siguang. The results reveal the intrinsic relationship between the rhombic tectonic framework and the patterns displayed in these experiments.

The experiments illustrated were made under the condition of body forces. The present author holds that the instability mechanism of the upper crust may very likely control to a certain extent the tectonic movements occurring in it. Therefore, the structural features of the earth's crust should not be neglected. The force generated by the effect of the earth's rotation is probably matchable to that causing the instability of the earth's crust.

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TITLE: "On the Mechanism of the Formation of Fracture Structures"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 73-77

TEXT OF ENGLISH ABSTRACT: According to Griffith's theory of rupture and Lajtai's comments, we have conducted both field investigations of fracture structures and laboratory studies of photoelasticity so that the formation mechanism and evolution history of fracture structures may be elucidated. In an all-round view, their development has undergone three stages: First, the en-echelon fissures appeared in the rock block, massif or rock sample body. The fissures were arranged alternately and successively with the tail of a fissure opposing the head of the next one. These fissures may be formed by either a pure or simple shear. Generally speaking, they were the earliest product in a single tectonic system (i.e., a single tectonic field), or acted as different structural fissures preexisting in the geological bodies. Under the tectonic stress, they exist in a critical state. Second, the tips of these en-echelon fissures began at first to form tensile cracks nearly parallel to the orientation of principal compression stress, and then their ends linked up gradually with each other. Third, the ends of the tensile cracks are completely jointed, and their direction coincides with the collinear line of pre-existing echelon fissures. Finally, they develop into a shearing zone, and the mechanical nature of the structural plane is either shear-compressive or tenso-shearing.

[Continuation of DIZHI KEXUE No 1, 1981 pp 73-77]

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TITLE: "On the Hydration of Quartz in Metamorphic Rocks"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 78-81

TEXT OF ENGLISH ABSTRACT: This paper discusses the hydration of quartz in metamorphic rocks and its genesis.

As a result of hydration, the hydrous quartz consists usually of two parts: the inner part, that is nothing but a residual anhydrous core, and the outer part, that is called the hydration rim. Because of the lower refraction index of the latter, a clear Becke Line appears between the two parts. It seems that the hydration rim is similar to the "quartz girdle." It frequently develops along the boundaries of fissures and intergranular spaces. With the development of the hydration of quartz, the residual anhydrous core became small or even died away. Multi-layered hydration rims may be a reflection of polymetamorphism.

Simple experiments show that hydrous quartz can be dehydrated at a certain temperature and normal pressure, and that the kind of water contained in hydrous quartz

[Continuation of DIZHI KEXUE No 1, 1981 pp 78-81]

is probably not crystalline water but absorption water. The hydration of quartz has been determined in hydrous metamorphic rocks of green schist facies and amphibolite facies, but so far it has not been found in the granulite facies rocks.

Confirmation of the hydration of quartz will be of help in the study of metamorphism. In a certain sense, the hydration rim may be considered a "facies indicator."

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TITLE: "Refinement of a Plagioclase Geothermometer"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 82-86

TEXT OF ENGLISH ABSTRACT: Applying the Kudo-Weill plagioclase geothermometer to basaltic rocks, the author found that the calculated values are generally higher than the measured ones.

This paper offers an empirical refinement of the Kudo-Weill plagioclase geothermometer based on experimental data of natural basaltic rocks and the Ab-An-Di system. If applied to basaltic rocks or basaltoid rocks of a dry system, the refined plagioclase geothermometer can give more realistic and accurate estimates of the crystallization temperature of plagioclases.

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TITLE: "The Application of Quadratic Polynomial Stepwise Regression to the Prediction of the Productive Capacity of Oil-Field Fractures"

SOURCE: Beijing DIZHI KEXUE [SCIENTIA GEOLOGICA SINICA] in Chinese No 1, 1981 pp 87-93

TEXT OF ENGLISH ABSTRACT: This paper describes the application of quadratic polynomial stepwise regression quantity to the prediction of the productive capacity of a low permeability oil field after fracturing. By stepwise regression analysis, we can determine various parameters in regard to the reservoir characteristics, formulate adequate technical measures and hence establish the approximate equation for predicting the productive capacity of oil-field fractures. Based on this approximate functional relation, a rational match of technical parameters can then be suggested and the productivity be predicted.

9717
CSO: 4009/163

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TITLE: "The Greatest Instrument of Scientific Experiment--the Modern Accelerator"

SOURCE: Beijing YIQI YU WEILAI [INSTRUMENTATION AND FUTURE] in Chinese No 1, Jan 81 pp 10-11

ABSTRACT: This paper reviews the advances in physics since the beginning of the 20th Century. Of the 3 basic theoretical subjects of natural science, physics currently is bringing the study of the structure of materials into the micro-universe and in this pursuit, the indispensable tool is the various types of modern accelerators. This paper explains the history of accelerators and the need for increasing their energy output. It has been suggested among the international circle of physicists that a large accelerator should be built with a diameter nearly 20 km and an energy capacity of 10^{13} ev and would have an estimated cost of 10 billion dollars. If an accelerator is to be built to produce as much energy as cosmic ray, the natural source of high energy particles, the diameter of the accelerator would have to be larger than that of the earth itself. The importance of accelerators in the study of basic particles and the mystery of the micro-universe are briefly explained.

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ORG: None

TITLE: "A Brilliant Future for Integrated Optics"

SOURCE: Beijing YIQI YU WEILAI [INSTRUMENTATION AND FUTURE] in Chinese No 1, Jan 81 pp 13-14

ABSTRACT: Many uses of optical instruments and the need for them in every sphere of modern living are briefly explained. Optical instruments are made of several to several hundred parts made of glass; therefore, they may weigh several tons. Their size and weight often cause them to be not useable where they may in fact be needed. Integrated optical instruments are made of integrated optical circuits and integrated optics is a new science devoted to studying the theory, manufacture, and application of miniaturized integrated optical instruments, using thin films to replace ordinary optical components and systems. This paper explains the current status of thin film optics and its future promises. There is no mention of progresses in the field made in China, if any, however.

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TITLE: "Characteristics of the Human Body and Instrument Designing"

SOURCE: Beijing YIQI YU WEILAI [INSTRUMENTATION AND FUTURE] in Chinese No 1, Jan 81 pp 18-19

ABSTRACT: If instruments are designed without consideration of the special characteristics of the human body [the author intends to include all human factors, i.e. physical, mental, and psychological characteristics of human beings] millions of dollars of losses may be the result. For example, the clock type altimeter on the aiplanes can easily be misread to cause the pilot to believe he is close to 2,800m while in fact he is close to 2,000 and a mid-air collision may thus occur; when a digital altimeter is used to replace the old fashioned ones, the chance of misreading is greatly reduced. Several such instances are illustrated to demonstrate the importance of designing the form of the indicator-needle or the shape of the instrument panel, etc.relative to the human capabilities, including the position of the operator, his eye level, visual field, luminance requirement, etc. The discussion of the subject concerns primarily with instrument design of airplanes.

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TITLE: "Speaking of Instrumentation in Terms of Energy Conservation and Energy Development"

SOURCE: Beijing YIQI YU WEILAI [INSTRUMENTATION AND FUTURE] in Chinese No 1, Jan 81 pp 19-20

ABSTRACT: Sources of energy refer mainly to various material resources for producing heat, electrical power, motive power, etc. including coal, patroleum, natural gas, hydroelectrical power, etc. They are the grains of industry, indispensable for modern living. The Arab oil embargo of 1973 is used in the paper to illustrate the importance of such resources. The per capita energy consumption of China remains low but China has a very large population and its total energy consumption has already reached the 4th among all the countries of the world. Energy deficiency is already a serious problem and many cities have experienced electrical power cut off periodically and many factories have to stop production because of it. This paper explains how meters may be utilized to save energy. For example, the workers of a certain factory in Beijing did not have electrical meters and on the average every family used 33kw per month. After meters were installed in every househood, the average dropped to below 7 kw per househood per month. In energy development, the paper explains that meters are indispensable in developing solar energy, nuclear energy, etc.

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TITLE: "The Outer Garment of the Core of a Semiconductor"

SOURCE: Beijing YIQI YU WEILAI [INSTRUMENTATION AND FUTURE] in Chinese No 3, Mar 81 p 16

ABSTRACT: If the cap of an integrated circuit is removed and the circuit placed under a microscope, one may observe the fact that the rice grain sized semiconductor core is covered by a thin film of all sorts of colors. This layer of thin film is the outer garment of the semiconductor core. It enables the core to be separated from the external world and prevents the core from attacks of various pollutants such as poisonous gases, moisture, sodium ions, etc. so that the core may carry on its normal function in various types of instruments. This outer garment is generally made of silicon dioxide, aluminum trioxide, phosphorus silicon glass, silicon nitride, etc. Of these, the insulating power, the heat conductivity, the chemical stability, the radiation resistance, and the silicon ion penetration resistance of silicon nitride are the best. In recent years, a new plasma silicon nitride coating technique has appeared (1978) in foreign countries to give the coating very good covering and adhesion characteristics over gold or metallized aluminum. With the rapid development of instrumentation and semiconductor industries in China, the author predicts that the inexpensive, reliable, and high quality technique of plasma silicon nitride coat will also be adopted and extended soon.

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ORG: None

TITLE: "Automatic Controlled Level Discriminator Improves the Stability of the Magnetic Memory"

SOURCE: Beijing YIQI YU WEILAI [INSTRUMENTATION AND FUTURE] in Chinese No 3, Mar 81 pp 18-19

ABSTRACT: Magnetic drums, magnetic tapes, and magnetic disks are extensively used in electronic computers and various instruments. It is very desirable to improve the anti-interference capability of these magnetic storage devices so as to increase the stability of these instruments. In the process of storing information in these magnetic devices, a read out circuit is needed to handle the magnetic signals of many different amplitudes; therefore, its anti-interference capability must be very high. Most recently, the author and colleagues applied the method of automatic variable amplitude discrimination to make the G-3 magnetic drum read out circuit to be used in the TQ-16 computer. Very satisfactory results have been obtained with this instrument. The paper explains the theory, structure, and effects of the G-3 magnetic drum read out circuit.

AUTHOR: None

ORG: None

TITLE: "China Society of Instrumentation and Meter Science Called a Work Conference"

SOURCE: Beijing YIQU YU WEILAI [INSTRUMENTATION AND FUTURE] in Chinese No 3, Mar 81 p 32

ABSTRACT: On 15-24 Feb the China Society of Instrumentation and Meter Science held a work conference in Beijing. The participants included more than 50 delegates of various local and specialty societies. The conference was chaired by the society's deputy director LI Liuping [2621 0362 1627]. The delegates exchanged work experiences and discussed ways of further developing China'sinstrumentation and meter sciences and technologies during this period of adjustment of the national economy. It was determined that foreign and domestic scientific exchange projects should be seriously taken up by the society this year and the emphasis should be on actual effects. The 2 publications of YIQI YU WEILAI and YIQI YIBIAO XUEBAO should be satisfactorily continued and various technical training classes should be organised to improve the level of science and culture of the technicians and meter workers. Various forms of activities for popularising scientific education should also be developed.

AUTHOR: None

ORG: None

TITLE: "Meter Components Information Network Called Its Third Work Conference"

SOURCE: Beijing YIQI YU WEILAI [INSTRUMENTATION AND FUTURE] in Chinese No 3, Mar 81 p 32

ABSTRACT: The State's General Bureau of Instrument and Meter Industry called the third work conference of meter component information network on 4-8 Mar and more than 50 production, research units and schools of higher education sent delegates to attend the conference. The delegates introduced and exchanged ways of predicting the market trends to serve the development of new products according to conditions ofindustrial automation and requirements for components in China and in foreign countries. The conference also formulated the 1981-82 plan of the information network and established a work plan for compiling technical documentation of foreign manufacturers.

5168
CSO: 4009/231

AUTHOR: FANG Zongxi [2455 1350 3356]

ORG: Shandong College of Oceanology

TITLE: "A Report on the Studies of Effects of Environmental Pollutants on Chromosomes--A Sino-American Joint Research Project, 1980"

SOURCE: Qingdao SHANDONG HAIYANG XUEYUAN XUEBAO [JOURNAL OF SHANDONG COLLEGE OF OCEANOLOGY] in Chinese Vol 11 No 1, Mar 81 pp 1-11

EXCERPTS FROM ENGLISH ABSTRACT: A Sino-American joint research work on the use of the Tradescantia micronucleus (MCN) technique devised by Professor T. H. Ma was carried out in our laboratory from 6 July to 5 October 1980. In 1979, when Professor Ma visited Qingdao, this research was suggested and discussed. The research project was soon approved by the China Ministry of Education and the U.S. National Academy of Sciences, respectively.

The principal investigators are Dr. Fang Zongxi [2455 1350 3356], Professor of Biology, Shandong College of Oceanology, Qingdao, PRC, and Dr. Ma Dexiu [7456 1795 0208], Professor of Biology, Institute for Environmental Management, Western Illinois University, Macomb, Illinois.

Two major objectives proposed under this Sino-American joint research project were: 1) the development of an efficient bioassay for detection of seawater

[Continuation of SHANDONG HAIYANG XUEYUAN XUEBAO Vol 11 No 1, Mar 81 pp 1-11]

pollution, and 2) application of Tradescantia Micronucleus Bioassay to conduct in situ monitoring of air pollutants and testing of water pollutants in Qingdao.

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LIN Zhenhong [2651 2182 1347]
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ORG: All of the Department of Marine Geology

TITLE: "Sedimentation of Si River Delta, Weishan Lake"

SOURCE: Qingdao SHANDONG HAIYANG XUEYUAN XUEBAO [JOURNAL OF SHANDONG COLLEGE OF OCEANOLOGY] in Chinese Vol 11 No 1, Mar 81 pp 67-79

TEXT OF ENGLISH ABSTRACT: Oil and gas exploration shows that ancient deltas are often areas where substantial amounts of oil and gas have been generated and trapped. The study of the modern delta model may lead to the discovery of ancient deltas and help to predict the location, geometry and distribution of potential reservoir beds. Recently, the study of sedimentary facies of modern deltas has been a significant object in marine geological science.

From August of 1978 to June of 1979, the Si River Delta was investigated and drilled, and 64 samples and 9 cores were collected and analyzed from the delta.

On the basis of grain size and geochemical parameters, distribution of heavy minerals, clay mineral assemblages, organic matter content, microfossils,

[Continuation of SHANDONG HAIYANG XUEYUAN XUEBAO Vol 11 No 1, Mar 81 pp 67-79]

sedimentary structure and geomorphological features, the delta deposits can be divided into topset, foreset and bottomset facies, and also into flood plain, natural levee, distributary channel, abandoned channel, subaqueous channel, interdistributary bay and lacustrine subfacies. The features of each facies are shown in the table. From this study we come to the following conclusions: (1) Organic matter and heavy-mineral contents, Fe^{2+}/Fe^{3+} ratio and grain size in the deltaic sediments show regular variances from the distributary channel to the lacustrine bay; (2) An upward-vertical sequence, ranging from clay to sands to silts, is consistent with distribution of the bottomset, foreset and topset beds; (3) The framework of the delta which is built up from finger-shape sands of the distributary and subaqueous channels is characterized by longitudinal continuity and lateral discontinuity; and (4) Stages of development in the delta system following the pattern of the birdfoot delta are controlled by the Si River flow.

9717
CSO: 4009/200

AUTHOR: CHENG Guishu [4453 6311 3796]

ORG: None

TITLE: "On Problems in Extending Offset Lithography in Printing Books"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 5, 80 pp 2-3

ABSTRACT: In the past, type must be set with lead characters before the wet photographic process and the plate are developed with potassium cyanide in order to produce a page by the old fashioned offset process in China. It was very easy to have deformed characters and some characters may not be legible. This shortcoming had given the offset process a bad reputation in China. This paper discusses the merits of the new offset process and recommends its adoption for printing books. Aside from establishing some new offset printing plants, the old printing establishments have trained personnel and material conditions and need only a cylindrical paper offset machine to start production. The author hopes that the old equipment may be gradually retired or given to small plants which may be urgently in need of typographic machines. The development of phototypography should follow that of offset printing process and most of all, factories should first be established to manufacture offset machines to provide the condition for developing offset lithography.

AUTHOR: CHEN Shuchang [7115 2579 2490]

ORG: The 1201 Factory

TITLE: "Understandings in Extension and Application of Far Inrared Heating Technology"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 5, 80 pp 6-9

ABSTRACT: The 1201 Factory began in Nov 79 to plan and experiment with such new technologies as far infrared heating and aluminum silicate fiber insulation, etc. A little over half a year later, the factory was ready to apply these techniques in the offset printing plate drying machine, the intaglio press, glazing machine, rubber mixing machine, plastics dryer, typecasting machine, etc. These machines originally consumed 198.4 KW of power. After the new technologies are introduced, they consume only 74.3 KW of power. The basic theory of far infrared heating and the process of using it to replace gradually the old steam and electric heat equipment are explained. Finally, the paper also recommends the use of the new refractory material aluminum silicate fiber in old heating equipment. This material is very inexpensive and the energy saving result is very obvious.

AUTHOR: None

ORG: None

TITLE: "Taiyuan Printing Shop eagerly Extends and Applies Far Infrared Technology"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 5, 80 p 11

ABSTRACT: Taiyuan Printing Shop is eagerly extending and applying far infrared drying technology. At the plant, it has already been used in the 12 work processes of plate drying, grazing, offset printing, blocking, etc. Satisfactory results have been obtained in saving electrical power, improving productivity, and improving quality. At present, its application in such work processes as melting lead are being experimented. Three photos are included in the paper to depict the use of far infrared heating to dry offset printing plates, to dry copper zinc plates, and to dry printed materials on the offset press.

AUTHOR: HU Xinrong [5170 2946 2837]

ORG: None

TITLE: "Research on Making Bench Type Paper Cutter Succeeded"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 5, 80 p 58

ABSTRACT: Beijing Municipal Research Institute of Printing Technology recently succeeded in the study on making the TQZ-16 bench type paper cutting machine. This machine will be a great convenience for cutting printed materials at government agencies, schools, troops, scientific research organizations, libraries, etc. The machine will handle a maximum size of 310 x 25-316mm in a thickness of 0.5-35 mm (newsprint.) The blade falls in a slanted linear motion to reduce the resistance of the paper. There is also a safety device to protect the operator. Most recently the shop invited related organizations to view the machine. All present praised the machine for being small, safe, and simple to handle, but also made some suggestions of improvement. The researchers of the shop are now urgently improving it. It is hoped that it will soon be ready for production to meet the needs of the market.

AUTHOR: XIE Yansheng [6200 3601 5116]

ORG: China Research Institute of Printing Science and Technology

TITLE: "Plate Making and Printing in the USA"

SOURCE: Beijing YINSHUA JISHU [PRINTING TECHNOLOGY] in Chinese No 6, 80 pp 61-62

ABSTRACT: China Research Institute of Printing Science and Technology sent a study group this year to investigate the condition of development of computer graphics processing technology in terms of lithographic plate making and printing in the USA. In the early 50's, the Time Magazine Company made the PDI Color Separation Machine, but it has never been available for sale. In image processing, efforts in the USA are concentrating mainly on satellite pictures and remote control technology. Research on image processing in printing industry is only a matter of recent years; therefore, in color picture process, the USA is behind W. European countries. The study group visited some printing shops and printing machinery manufacturers but they are not many in number. The general impressions are: (1) Offset printing is replacing relief printing and there is not much new development in the latter. (2) New printing technology concerns mainly newspaper printing. At present photographing manuscript is no longer necessary and plates are now made directly from the compositor. Products of Log Escon, Ecom, Du Pont, and 3 M, in fields of laser plate making, film developing under white or yellow light, phototype setting are briefly reported.

6248
CSO: 4009/224

AUTHOR: WANG Zhisheng [3769 2535 3932]

ORG: None

TITLE: "Brief Introduction of The Condition of Use of the Overhead 12-line Carrier Wave Telephone Equipment"

SOURCE: Beijing DIANXIN JISHU [TELECOMMUNICATION TECHNOLOGY] in Chinese No 3, 10 Mar 81 pp 1-2, 25

ABSTRACT: The author and colleagues used the ZMG302 carrier wave telephone terminal and ZRG302 telephone audio amplifier to form the exposed cable overhead 12-line carrier wave communication equipment. The effective transmission frequency is 0.3-3.4 kHz; the line transmission frequency is 156-280 kHz. This overhead 12-line system has been extensively adopted in Hebei Province for communications of distances of several tens to 600 km. In some cases, 2 sets of 12-lines are installed on single poles in some sections of the route. These instruments have been in use more than 6 years, aside from some troubles of work processes and components, there have been no problem in the technological system. In view of the operational experience, adding frequency modulation carrier wave telegraphy and television equipment should be feasible, even though these additions have not yet been carried out at present. Major technical considerations, current problems, and method of improving the system are discussed.

AUTHOR: CUI Xuejin [1508 1331 6855]

ORG: None

TITLE: "Skillful Use of QP373 Transmission Testing Instrument"

SOURCE: Beijing DIANXIN JISHU [TELECOMMUNICATION TECHNOLOGY] in Chinese No 3, 10 Mar 81 p 18

ABSTRACT: In the process of maintenance and repair of carrier wave instrument, the frequency of a given point must be frequently observed. If the power level of a given point is too low, the frequency meter cannot correctly determine the frequency. If it is to be tested, an amplifier must be placed between the point to be tested and the frequency meter, but it may be difficult to locate an amplifier offhand and the quality of the amplifier is also difficult to guarantee. In such an occasion, the author recommends the QP373 transmission testing instrument. It has good amplification action, and within 300 Hz - 600 kHz, the k-f characteristic curve is flat. A control knob may be adjusted to vary the test range and change the gain so as to increase the level of the signal being tested to a proper degree. The procedure of using the transmission testing instrument is described.

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